UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/882,283	06/14/2001	Xiaopeng Chen	020945-001510US	7871

20350 7590 11/23/2004

TOWNSEND AND TOWNSEND AND CREW, LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

EXAMINER	
TORRES, JOSEPH D	
ART UNIT	**PAPER NUMBER**
2133	

DATE MAILED: 11/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/882,283	CHEN ET AL.	
	Examiner	Art Unit	
	Joseph D. Torres	2133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 August 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) *1* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 June 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. This application contains claim 1 drawn to an invention nonelected without traverse in Paper No. 7. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Drawings

2. In view of the Applicant's amendment filed 08/24/2004, the Examiner withdraws all objection to the drawing.

Response to Arguments

3. Applicant's arguments filed 08/24/2004 have been fully considered but they are not persuasive.

The Applicant contends, "As one of ordinary skill in the art would understand, this indicates that the closed set of symbols has Members, but the value of M is not necessarily specified". The Examiner questions the use of "closed". The set $\{A_0, A_1, \ldots, A_{M-1}\}$ is a set of symbols. Nowhere in the specification does the Applicant define "closed set of symbols" (Note: examples of what a "closed set of symbols" may be, do not provide a definition). Closed in mathematics has a specific meaning referring to sets with operations and topologies. Saying a set is closed

under an operation means that any result of operating on elements within the set with the operator results in an element that is still in the set. Nowhere does the applicant teach any operator associated with the set $\{A_0, A_1, \ldots, A_{M-1}\}$. Saying a set is closed under a topology means that an open set can be found for any element in the set such that the open set is a subset the set. Nowhere does the applicant teach any topology associated with the set $\{A_0, A_1, \ldots, A_{M-1}\}$. Hence the set $\{A_0, A_1, \ldots, A_{M-1}\}$ is just a set of symbols with no topology and no operation associated with it. Referring to the set $\{A_0, A_1, \ldots, A_{M-1}\}$ as a "closed set of symbols" gives the impression that it is more than what it is. Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999). Nowhere has the Applicant clearly redefined so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. Furthermore, there is no need to since the Applicant clearly intends a set of symbols and no more. The term "set of symbols" is the correct term for what the Applicant intends.

The Applicant contends, "As recited in the claims, a 'revised closed set of symbols' is a partitioning of a 'based closed set of symbols.' See claims 9, 10, 22,

and 23. This is clearly described in the specification at p. 7, lines 6-7". Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999). Nowhere has the Applicant clearly redefined so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. Note: the Applicant doesn't even use the term "revised closed set of symbols" or "base closed set of symbols" anywhere on page 7 in the specification.

The Applicant contends, "Cheng clearly does not teach or suggest the processing of a backward recursion that is independent of the forward recursion, as recited in claim 2" and goes on to cite "Cheng states that '[t]he decision feedback side information for the backward recursion is not associated with the surviving paths in the backward trellis, but rather is determined by the forward recursion to represent backward prediction symbols along each path.' See Cheng at col. 4, lines 54-57; col. 5, lines 51-66; and Fig. 2" as evidence.
The Examiner would like to point out that that col. 4, lines 54-57 and col. 5, lines 51-66 in Cheng only indicate that "[t]he decision feedback side" is independent of is not associated with the surviving paths in the backward trellis, but rather is

determined by the forward recursion. The evidence that the Applicant provides says nothing about the backward recursions themselves. Figure 2 only indicates that forward recursions are performed before backward recursions.

The Examiner asserts that Equation 10 in col. 8 of Cheng teaches that, during backward recursions, a current backward metric β_{n-1} only depends on a previous backward metric β_n (Note: backward recursions traverse the Trellis diagram for a state machine in reverse) and branch metrics γ_n calculated at specific point in a Trellis diagram for a state machine independently of forward metric calculations α_n.

The Examiner disagrees with the applicant and maintains all rejections of claims 2-32 All amendments and arguments by the applicant have been considered. It is the Examiner's conclusion that claims 2-32 are not patentably distinct or non-obvious over the prior art of record in view of the references, Cheng; Jung-Fu (US 6658071 B1), Crozier; Stewart et al. (US 6145114 A) and Benedetto et al. (S. Benedetto, G. Montorsi, D. Divsalar and F. Pollara in "Soft-Output Decoding Algorithms in Iterative Decoding of Turbo Codes," The Telecommuinications and Data Acquisition Progress Report, Jet Propulsion Laboratory, California Institute of Technology, vol. 42-124, pp. 63-87, February 1996) as applied in the last office action, filed 05/20/2004. Therefore, the rejection is maintained.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 2-32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

See the Non-Final Action filed 05/20/2004 for detailed action of prior rejections.

Claim Rejections - 35 USC § 102

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 2, 4-15, 17-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Cheng; Jung-Fu (US 6658071 B1).

See the Non-Final Action filed 05/20/2004 for detailed action of prior rejections.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to

be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 3 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng; Jung-Fu (US 6658071 B1) in view of Crozier; Stewart et al. (US 6145114 A, hereafter referred to as).

See the Non-Final Action filed 05/20/2004 for detailed action of prior rejections.

7. Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng; Jung-Fu (US 6658071 B1) in view of Benedetto et al. (S. Benedetto, G. Montorsi, D. Divsalar and F. Pollara in "Soft-Output Decoding Algorithms in Iterative Decoding of Turbo Codes," The Telecommuinications and Data Acquisition Progress Report, Jet Propulsion Laboratory, California Institute of Technology, vol. 42-124, pp. 63-87, February 1996).

See the Non-Final Action filed 05/20/2004 for detailed action of prior rejections.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D. Torres whose telephone number is (571) 272-3829. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Joseph D. Torres, PhD
Primary Examiner
Art Unit 2133